

# **Results of the survey sent to the GoE Experts (WP.1/GE.3)**

## **"Safe Deployment of Automated Vehicles in International Traffic"**

6 December 2021



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# Context of the survey

Questions were raised during the preparation of the first informal session of the Group of Experts in November 2021

The secretariat proposed to the GE.3 bureau to distribute these questions.

A survey / questionnaire (based on these questions) was sent a week before the session. Delegations had 4 full working days to answer to the questions.

This presentation provides an evaluation of the answers provided.

The secretariat received 17 answers: 14 answers and 3 trials (empty)

The questions were open questions (no multiple choice) with free text.

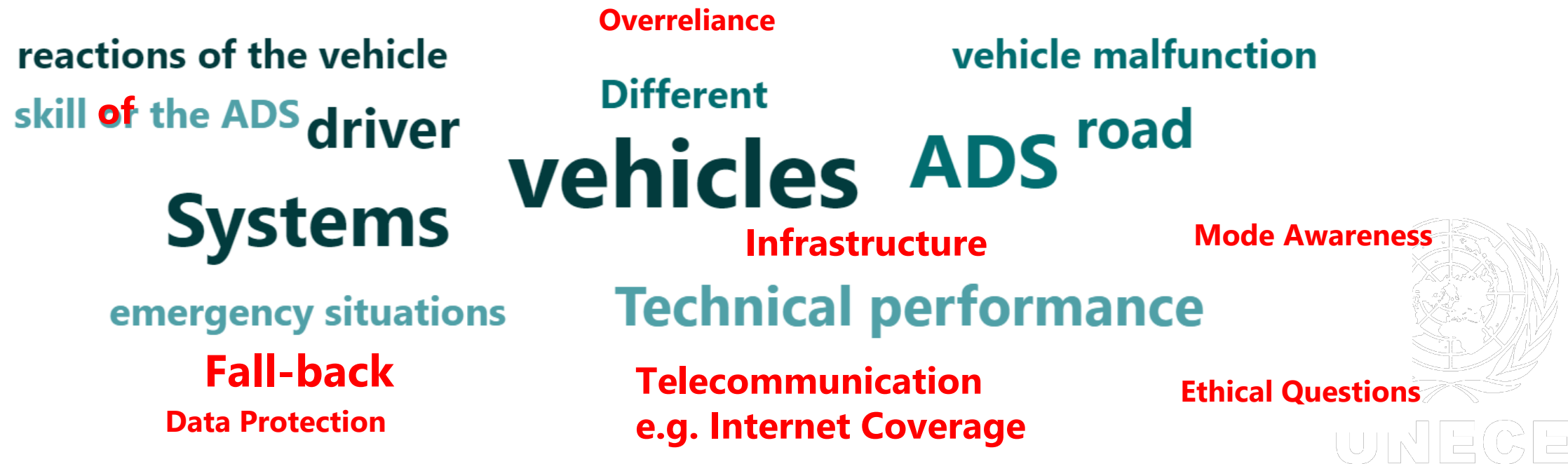
The analysis was performed using MS Form, looking at the semantic. It produced word clouds:

- The text in green was produced automatically by the tool.
- The secretariat inserted obvious missing points in red.



Questions 1 and 2 were about the respondents

3. What are the **additional road safety risks** posed by automated vehicles in comparison with traditional ones that you believe may require intervention by road safety authorities?



4. What do you know about the potential scope/nature of these risks at this early stage in AV development, e.g., how likely are they to manifest themselves, and how frequent or severe do you anticipate these risks to be for road safety?

risk are likely  
early stage  
consequences  
driver  
ADS  
High  
DDT  
Likely  
not able  
low High risk  
road quality

5. Are these **challenges** completely **novel and/or unique to automated vehicles**? **How do they differ** from conventional road safety issues with human drivers that may already be addressed by international legal instruments?

takeover requests  
road users  
Responsibility issue  
mutual understanding  
humans  
ADS  
roles of a user  
new risks  
similar  
roles and responsibilities  
vehicles  
favor of humans  
risk due to misuse  
Legal risk  
Lack of ethics  
styles and rules fully automated  
driver and vehicles



6. Do you have **sufficient information** at this time to appropriately define the problem and identify safety expectations in a legal instrument?

work day  
public roads

**No**

Not relevant  
introduction of AVs

complete picture

Prerequisites for the introduction

7. What are the **potential risks** faced by you as a contracting party **if a new/existing legal instrument is not developed/adapted** to address these issues?

Waste of investments  
international traffic  
boarder with ADS  
isolated application  
Loss of driving skill for drivers  
frequently using ADS  
border traffic  
Liability/Responsibility  
**Cross boarder**  
boarder traffic  
safety-assessment Lack of trust  
industry and potential  
**boarder traffic**  
Enforcement will be impossible



8. **Are there other tools** that might be more appropriate to address certain risks/provide direction to you as a contracting party at this early juncture?

**strong connection**  
**WP29 regulations**  
**European directives**  
**EU directive**  
**legal instrument**   **Resolution**

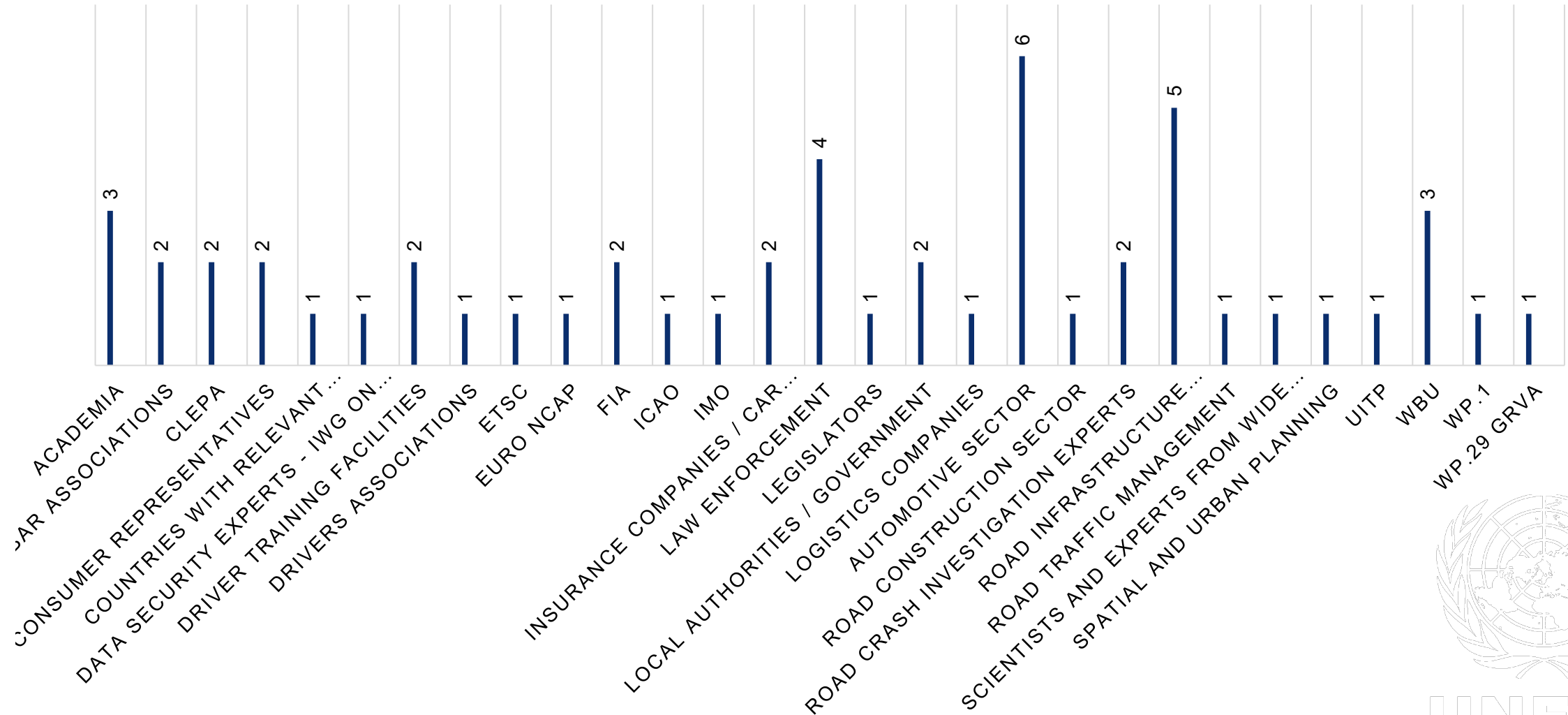
**scintists and legislators**  
**No**   **conventions**  
**current conventions**  
**connection among producers**





# 9. According to your opinion, which stakeholders should be consulted on road safety risks as part of GE.3's analysis?

■ Number of Votes



# 10. According to your opinion, do the existing **conventions** **adequately address the topic** of automated vehicles in international traffic?

- Yes
- No

0

12



**11. Please briefly explain your answer in question 10  
(According to your opinion, do the existing **conventions adequately**  
address the topic of automated vehicles in international traffic?)**

## **Cross-border traffic**

**Anachronistic**

**ADS definitions**

**No explicitly mentioning AVs**

**Responsibility**

**1949 Convention on Road Traffic: no**

**1949 Convention on Road Traffic: yes**

**1968 Vienna Convention on Road Traffic: yes**



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12. On the national level, **have you previously conducted an analysis** of one or both of the Conventions in order to determine its/their shortcomings in relation to automated vehicles?



3  
9



# 13. What was/were the main finding(s) of your analysis/analyses?

Harmonization is needed

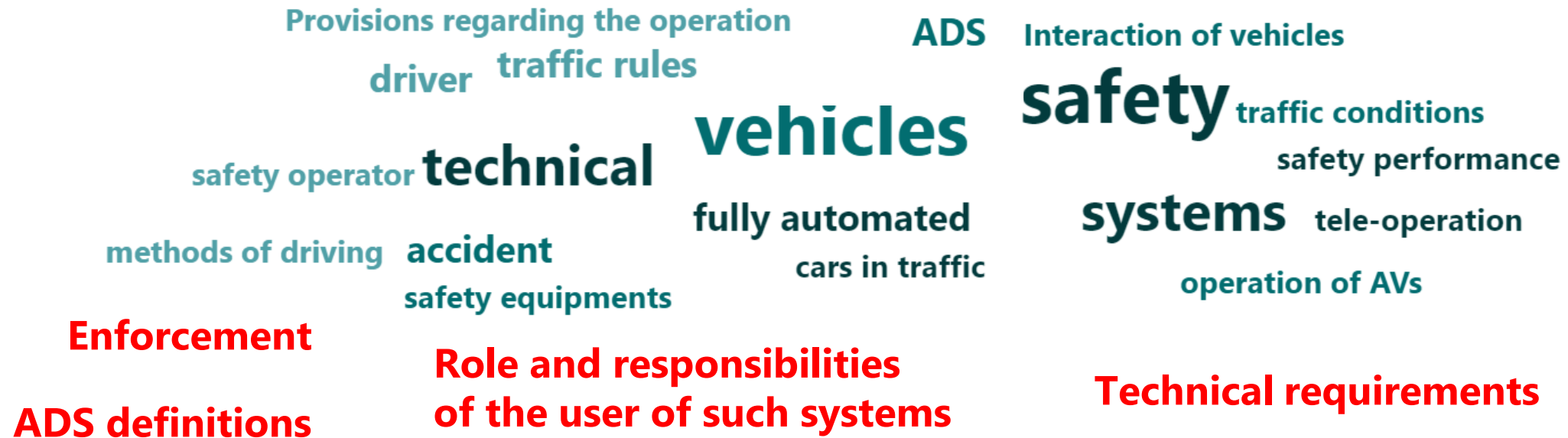
Rewording to eliminate e.g. the term driver

14. According to your opinion, what **type of legal instrument** is best suited to complement the existing 1949 and 1968 Conventions, without restricting the current margin of manoeuvre of Contracting Parties, and flexible enough for amendments, paying due regard to the ever evolving AV technologies?

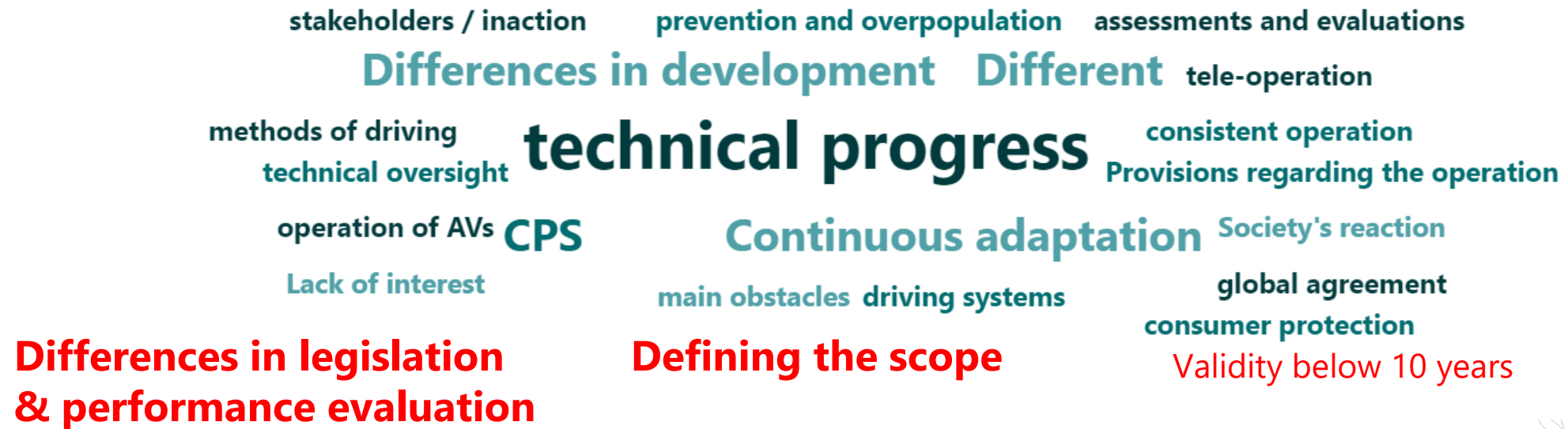
best option use and performance Uniformed  
treaty for use New instrument Protocol legal instrument cross borders  
international rule **New convention** traffic issue  
identification of the type **Amendment to the conventions**  
consultations are still ongoing



# 15. What is/are the priority aspect(s) that a new legal instrument on the use of automated vehicles in traffic should address?



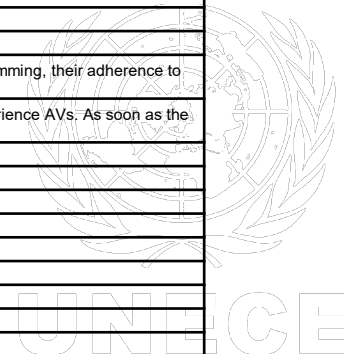
16. What are the **main obstacles** that may arise in the foreseeable future **for the development of a new legal instrument** on the use of automated vehicles in traffic and what may be the expected **validity period** of this instrument or the timing of its revision?





# Many explanations supporting answers

The problem is not defined explicitly yet.
We know we need to be able to test and experiment in the R&D-phase in every country, before granting access to the road. We know that VRU's need extra protection and care in traffic, especially in built up areas.
This process of adjustment can only start when we know these vehicles will enter the market. This is a time-phasing issue.
The human in the vehicle can not be called "the driver" when the ADS has the dynamic control, because he/she can not take care of all the responsibilities attached to the driver role in the 1968 Vienna Convention. (Note: we have only taken a look at the Vienna Convention, we have no analysis of the 1949 Convention.)
Note: With automated vehicles, we mean vehicles with ADS systems.
2. Discussion is needed, not all the tools are necessarily legislative.
We need adequate international regulatory frameworks, at least on the principal level, to guide the development of automation in a manner that ensures traffic safety.
1. Amend the conventions 2.Keep on level of principles to keep the work valid in time
The specific questions that the new convention must answer need to be visualized and broken down so that the convention can provide answers to them (see the Swedish informal paper SE ECE-TRANS-WP.1-GE.3-2021-1-inf.2 e). To our opinion do GE.3 need to visualize a safe system including automated vehicles, then will it be possible to use this knowledge to perform a GAP-analysis to see if the 49 and/or the 68 Conventions are enough to handle this safe system or in which part they are not sufficient, the remaining parts can then be the base for the new convention. The new convention should apply for the time being and then be developed through needed additions to it over time.
(Although time constraints make it difficult to answer all of the questions.) It is important that in automated driving, the use of ADS ensures the same level of safety as in the presence of a human driver. In Japan, the Road Transport Vehicle Act defines ADS as " equipment for operating a car automatically according to the program, and the equipment with the function of substituting all of the capabilities related to the recognition, prediction, judgment and operation of a person, who operates the Vehicle, when it is used under the conditions granted by the Minister of MLIT." Safety regulations for automated operation devices are "There shall be no risk of interfering with the safety of passengers or other traffic within the operating environment." This means that "any device which operates a vehicle contrary to the provisions of the Road Traffic Law relating to the conventional driver's obligation to operate the vehicle does not meet the requirements of the safety regulations for automated operation devices and is therefore prohibited from being used for operation".
The development of uniform/standardized measures in the case of these changing conditions at the authority level may simplify the preparation of automated vehicles for these situations. 2. It could also be considered that in the case of PTI assessment of these highly-automated vehicles, what kind of additional tests should be executed in order to extend the range of technical parameters required for compliance. For example, the appropriate calibration of sensors that are necessary for the automated functionality (e.g., radar, camera, LIDAR) should also be done. 3. Minimum requirements also have to be identified for road-section where autonomous driving should be enabled (E.g., quality of road surface, traffic signs, lane marking, barriers, etc.) Generally, it has to be identified which cases can be handled at the authority level from the examples above.
The authority can only assess the functionality of the system to a limited extent in the type approval procedure. In addition to road safety, the effects on traffic flow must also be taken into account.
The usage of automated driving functions on public roads is allowed in Hungary, but only for development purposes (since April 2017). Those companies that are using this opportunity shall report their activity to the authority responsible for the transportation. To answer the question, the availability of these reports will be checked, and if possible, results can be provided.
clarify some of the responsibility
The existing rules or regulations are focusing on rather the testing and the system developments aspects of the automated vehicles and not their behavior in international traffic.
An appropriate source of information on identified risks and approaches for addressing them, might be studies and researches conducted by governments, state institutes and independent scientific bodies.
3. In all levels, conformity assessment entities should assess the conformity to the Convention and the regulatory acts, under the supervision of international organizations.
new priority road for the automated vehicles for example tunnels single lane or sky road.
2. who is taking the responsibility.
a new regulation on road safety issues without human drivers.
The Responsibility
1. Automated and connected driving bears the potential to significantly improve traffic flows, reduce the incidence of critical situations, optimize the handling of corresponding scenarios and relieve the pressure on drivers.
Automated driving systems need to be able to perform all tasks of a human driver. OEMs will need to ensure the development of systems which, just as a human driver, adhere to relevant road traffic and road safety regulations.
It is first to be noted that safety benefits of AVs are expected to outweigh risks associated with AVs by far. Compared to human drivers, the operation of AVs may be characterized as rather cautious (e.g., standing back in favor of other VRU), considering, thanks to their respective programming, their adherence to road traffic and road safety regulations. In addition, current research projects testing AVs in real traffic show that most AVs move still rather slowly.
Innovation, testing and regular operation will lead to more and better insights, and to more advanced hard- and software, making the performance of AVs more predictable. However, it will be difficult to grow the public accustomed to AVs as long as they are unable to recognize and experience AVs. As soon as the public gets accustomed to AVs, the likelihood of the mitigation of respective risks is quite probable.
Risks related to divergence and retard of laws and regulations compared to technological progress.
faulty software and sensorics input/recognition.
(many risks are due to human interaction and are not solely attributable to automated driving systems.)
ALKS needs a driver .
Responsibility
Lack of legal clarity
Lack of training
Complexity increase means more reliance on humans
The Operational part of driving simple to handle for an autonomous system but the tactical and strategic level is difficult.



# Conclusions and proposed follow-up activities

The nature of the questions raises (open questions) created a diversity of answers that did not allow any quantitative evaluation.

Three main concerns expressed in the answers, that would need focus from this group:

- Performance of the technology (e.g. systems including fallback users)
- Responsibility / liability
- The importance of this work for cross border traffic

The secretariat published Informal Document 3 with the list of responses provided.

The study shows the variety of motivations for the work of the GoE on LIAV.

In order to refine its evaluation, the secretariat would volunteer to recirculate the same questionnaire but with multiple choice answers based on the key words highlighted in this presentation. (This would drastically shorten the time needed to answer to this survey).

The secretariat received references to studies and valuable material. They could be distributed if request.



**THANK YOU VERY MUCH  
FOR YOUR ATTENTION**

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<http://www.unece.org/>

**Francois.Guichard@un.org**



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